

**United States
Department of
Agriculture**

Marketing and
Regulatory
Programs

Animal and
Plant Health
Inspection
Service



Cooperative Exotic Tick Program

Environmental Assessment, February 2000

Cooperative Exotic Tick Program

Environmental Assessment, February 2000

Agency Contact:

D. Dave Wilson
Senior Staff Entomologist
Veterinary Services, Emergency Programs
Animal and Plant Health Inspection Service
U.S. Department of Agriculture
4700 River Road, Unit 41
Riverdale, MD 20737-1231
Telephone: 301-734-8364

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, gender, religion, age, disability, political beliefs, sexual orientation, or marital or family status. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact the USDA's TARGET Center at 202-720-2600 (voice and TDD).

To file a complaint of discrimination, write USDA, Director of Civil Rights, Room 326-W, Whitten Building, 14th and Independence Avenue, SW, Washington, DC 20250-9410 or call 202-720-5964 (voice and TDD). USDA is an equal opportunity provider and employer.

Mention of companies or commercial products in this report does not imply recommendation or endorsement by the U.S. Department of Agriculture over others not mentioned. USDA neither guarantees nor warrants the standard of any product mentioned. Product names are mentioned solely to report factually on available data and to provide specific information.

This publication reports research involving pesticides. All uses of pesticides must be registered by appropriate State and/or Federal agencies before they can be recommended.

CAUTION: Pesticides can be injurious to humans, domestic animals, desirable plants, and fish or other wildlife—if they are not handled or applied properly. Use all pesticides selectively and carefully. Follow recommended practices for the disposal of surplus pesticides and pesticide containers.

Table of Contents

I. Need for Proposal	1
II. Alternatives	3
A. No Action	3
B. Quarantine Only	4
C. Quarantine and Control (Preferred Alternative)	4
III. Environmental Consequences	5
A. No Action	5
B. Quarantine Only	6
C. Quarantine and Control (Preferred Alternative)	7
IV. Agencies, Organizations, and Individuals Consulted ...	13
V. References	14

I. Need for the Proposal

Ticks are known to be the vectors of diseases (viral, protozoal, helminthic, and bacterial) of animals and humans. Exotic ticks of the genus *Amblyomma* are known to be capable of carrying and transmitting the rickettsial bacterium *Cowdria ruminantium* that causes African heartwater disease. African heartwater disease is an acute disease of domestic and wild ruminants, including cattle, sheep, goats, deer, and antelope. Heartwater is only found in sub-Saharan countries in Africa and three islands in the Caribbean Sea. Mortality rates in susceptible species are estimated to range from 40% to 100%. No treatment or vaccine is available for the disease and control of the disease is achieved primarily through vector control.

Ticks that are the vectors of disease may already be present in the environment of the United States (e.g., the Gulf coast tick, distributed throughout the Gulf States in the United States, has been experimentally shown to be a good vector of the disease) or they may be inadvertently imported into the United States on animals or packing material. African heartwater disease, although a disease of ruminants, is carried by *Amblyomma* ticks that also infest reptiles. Imported African tortoises are believed to have brought the ticks into nine reptile facilities in Florida since 1997. In November 1999, ticks found in a Hillsborough County, Florida, reptile facility tested positive for the African heartwater disease organism.

The potential damage to animal and human health from exotic tick vectors of disease (see figures 1 and 2 for examples) has prompted the Animal and Plant Health Inspection Service (APHIS), and other Federal and State agencies to consider broad regulatory strategies to minimize the health threat. Those strategies may vary based on the locations and targeted disease vector(s), and include such actions as quarantines, restrictions or prohibitions on animal importations, and pesticidal treatments of premises and animals to control the tick vectors. APHIS is proposing a cooperative program in response to the disease threat that includes quarantine, regulating animal importations, and controlling exotic tick vectors on premises and animal treatments using pesticides with proven efficacy.

APHIS has authority under 21 United States Code (U.S.C.) 111, 113, 115, 117, 120, 121, 123-126, 134b, and Code of Federal Regulations (CFR) 2.22, 2.80, and 371.2d to carry out operations or measures to detect, eradicate, suppress, control, and prevent or retard the spread of certain vectors of animal disease. APHIS' authorities apply specifically to the control of animal diseases, however, some animal diseases are zoonoses (animal disease that are also transmissible to humans) and their

control would also be beneficial to the preservation of human health as well. This environmental assessment (EA) is prepared in compliance with the provisions of the National Environmental Policy Act of 1969 (NEPA), 42 U.S.C. 4321, et seq, and its implementing regulations. It is intended to apply in a general sense to APHIS' cooperative exotic tick programs throughout the United States, although its immediate purpose and need are related to emergency actions to control the tropical bont tick in Florida.

Figure 1. Exotic ticks that are known or suspected vectors of economically significant foreign animal diseases.

Amblyomma

A. astrion
A. cohaerens
A. gemma
A. hebraeum
A. lepidum
A. marmoreum
A. pomposum
A. sparsum
A. testudinarium
A. tholloni

Boophilus

B. annulatus
B. decoloratus
B. forae
B. geigy
B. kohlsi
B. microplus

Dermacentor

D. daghestanicus
D. marginatus
D. nuttalli
D. pictus
D. reticulatus
D. silvarium

Haemaphysalis

H. bispinosa
H. leachii
H. longicornis
H. otophila
H. punctata
H. sulcata

Hyalomma

H. anatolicum anatolicum
H. a. excavatum
H. detritum
H. dromedarii
H. marginatum marginatum
H. m. rufipes
H. m. turanicum
H. scupense
H. truncatum

Ixodes

I. persulcatus
I. pilosus
I. ricinus

Ornithodoros

O. erraticus
O. moubata
O. moubata porcinus

Rhipicephalus

R. appendiculatus
R. bursa
R. capensis
R. compositus
R. evertsi evertsi
R. e. mimeticus
R. glabroscutatum
R. koch
R. lunulatus
R. pulchellus
R. simus
R. turanicus
R. zambeziensis

Figure 2. Exotic ticks that either cause paralysis or toxicosis, transmit livestock diseases of limited economic importance, or commonly infest livestock in their native range.

Amblyomma

A. integrum

Argas

A. miniatus

A. vulgaris

A. walkerae

Dermacentor

D. auratus

D. marginatus

D. pavlovskyi

Haemaphysalis

H. acciculifer

H. anomala

H. concinna

H. heinrichi

H. intermedia

H. inermis

H. kutchensis

H. montgomeryi

H. nadchatrami

H. otophila

H. parmata

H. punctata

H. shimoga

H. sulcata

H. tilagea

Hyalomma

H. arabica

H. albiparmatum

H. asiaticum asiaticum

H. dromedarii

Ixodes

I. crenulatus

I. holocyclus

I. rubicundus

Margaropus

M. winthemi

Nosoma

N. monstrosus

Ornithodoros

O. lahorensis

O. savignyi

Rhipicephalus

R. humeralis

R. hurti

R. maculatus

R. praetextatus

R. pravus

R. sulcatus

R. tricuspis (=lunulatus)

II. Alternatives

Three alternatives were considered for the proposed Cooperative Exotic Tick Program: no action, quarantine only, and quarantine and control. Each is described briefly in this section, and the environmental consequences of each are summarized in the following section.

A. No Action

The no action alternative would be characterized by no APHIS action to control or limit the spread of exotic tick vectors of disease. Efforts to control exotic ticks could proceed through the efforts of State and local

governments, or commercial establishments, or private individuals, but the lack of Federal involvement could seriously jeopardize the success of such efforts. The lack of coordinated control efforts could result in expanding infestations of disease-bearing ticks and subsequent disease in domestic and wild animal populations. Diseased animals might be offered in interstate commerce and could lead to disease outbreaks in other States, with potential for substantial damage to agricultural resources and economy. Additionally, some humans might be expected to contract zoonotic diseases, with serious effects.

B. Quarantine Only

The quarantine only alternative would be characterized by APHIS' cooperation in a program that would only seek to exclude exotic ticks, or prevent their spread to other areas. Exterior quarantines could be imposed on other countries to prevent or regulate the importation of animals that are capable of carrying exotic ticks. If suitable surveillance methods were employed to identify exotic tick infestations, cooperative Federal/State quarantines could be implemented that would limit the spread of the infestation through commerce or human-assisted transportation. APHIS cooperation in a speculative quarantine only alternative would not preclude the efforts of State or local governments, or commercial establishments, or private individuals, to control tick infestations, by whatever means might be available to them. APHIS' cooperation in a quarantine only alternative, however, would not be consistent with APHIS' statutory responsibilities and authorities for eradicating or controlling animal diseases.

C. Quarantine and Control (Preferred Alternative)

The quarantine and control alternative would involve APHIS' cooperation in a comprehensive program to exclude, detect, delimit, prevent the spread of, and eradicate tick vectors of disease. The proposed program will include an exterior quarantine that prohibits importation of exotic ticks and regulates the importation of host animal species. Some animals, such as the African tortoises which carry ticks that vector African heartwater disease, will be prohibited from importation. Other animal species (e.g., reptiles, amphibians, llamas, antelope, and captive wild species) that are otherwise enterable into the United States will require inspection and certification. The program will include surveys to detect if exotic ticks are present in premises that house imported animals, such as zoos or animal dealerships, and to delimit populations, if found. The program will also include the means for emergency control of exotic ticks on animals and premises where animals are kept or found.

III. Environmental Consequences

The environmental consequences associated with the Cooperative Exotic Tick Program relate primarily to the disease and pest impact of the ticks and to the control measures used to treat infested hosts and premises. Each of the three alternatives considered in this assessment poses some risk of adverse environmental consequences to human health, livestock, wildlife, and/or environmental quality. The extent to which program action or inaction contributes to that environmental risk establishes the focus of environmental concern. The alternatives analyzed here apply only to the control of exotic ticks. Other tick control programs, such as the Texas Cattle Fever Tick Program (for *Boophilus annulatus* and *B. microplus*), are sufficiently different in their loci and characteristics to be considered separately.

A. No Action

The no action alternative maintains the existing regulatory procedures relating to exotic ticks. This alternative provides no mechanism for Federal action against exotic ticks that pose risks to animals or humans of disease, paralysis, or toxicosis. This approach continues the present high risk from exotic ticks and their hosts that are not now regulated or controlled.

Under this alternative, all efforts to detect, quarantine, and control ticks would be restricted to State and local governments, commercial entities, and private individuals. The effectiveness of State and local government would depend on the personnel and resources that would be available for exotic tick programs. Adequate inspection of imported animals for exotic ticks would require greater resources than have been presently designated and it is uncertain whether the States most susceptible to exotic tick infestation could afford to increase their efforts to prevent introductions and potential disease. Efforts to control ticks by local government, commercial interests, and private individuals have been commensurate with profit motivation and have not been very effective. Past independent initiatives such as the Winchester Quarantine in 1881 stirred up anger and violence among cattle owners, but these efforts were not very effective at controlling disease and tick spread (Boyd, 2000). Cooperative efforts have yielded better results.

Many of the exotic ticks are not host-specific. Therefore, their range could expand through infestation of wild animal populations with potential increase in disease. Tick-infested and diseased domestic animals and livestock could be transported through interstate commerce or personal movement to uninfested States where potential loss of

agricultural resources and economic costs could be substantial. Since some of these ticks are known to carry a number various diseases, it is anticipated that some people would contract these diseases with serious human health consequences.

The environmental consequences of infestations and disease vectored by ticks are variable. Mortality levels of 40% to 80% to susceptible livestock and wildlife from exotic ticks capable of transmitting heartwater and other diseases would result in substantial economic costs and adverse environmental consequences. Based upon the epidemiology of tick-borne disease, the limited success of independent and uncoordinated quarantine efforts, and the inherent ability of the exotic ticks to infest, infect, and populate new susceptible hosts; selection of the no action alternative would be expected to result in expansion of the range of exotic ticks, commensurate increases in disease incidence, and steadily increasing adverse environmental consequences.

B. Quarantine Only

This alternative includes exclusion, surveillance, quarantine, and related efforts to contain and limit the spread of exotic ticks and their tick-borne diseases. This could include Federal regulations to restrict importation of specific hosts known to harbor ticks that cause paralysis, toxicosis, or transmit economically significant foreign animal diseases. It does not include any Federal efforts to treat animals for tick infestation, nor does it include any Federal efforts to treat animal diseases vectored by tropical ticks. This regulatory approach to tick problems is not consistent with APHIS' statutory responsibilities and authorities, but it would depend upon State, local, commercial, and private interests to control the tropical ticks discovered through surveillance and to treat the diseases vectored by these ticks. This alternative assumes timely communication between Federal inspectors and those involved in control and eradication efforts.

This approach has some of the same problems that the no action alternative has. Relegating control and eradication efforts to State, local, commercial, and private interests would lack the cooperative advantages of working with a comprehensive Federal program. The limited resources for control and eradication under this alternative could limit effectiveness. The dependence upon good communication between certain inspectors conducting surveillance and other individuals involved in control measures would be vital for success of this alternative. The lack of host specificity of these exotic ticks makes it likely that some ticks could move to other hosts on the premises before detection and treatment were completed. This could be a particular problem if any exotic ticks spread to local wildlife. The potential for increases in paralysis, toxicosis, and disease in wildlife and domestic animals would

be considerably more likely if an introduction of exotic ticks became established. In addition, potential for adverse human health effects from zoonoses of established exotic tick populations could be a concern.

The addition of quarantine efforts under this alternative helps prevent introduction and movement of exotic ticks, in that exterior quarantines restrict importation of animals that are capable of carrying exotic ticks and interstate quarantines prevent spread of exotic ticks from locations that have specific infestations determined through surveillance efforts. Populations of exotic ticks on hosts in favorable climates are not likely to be controlled through attrition, but would be expected to maintain increasing numbers. In the absence of control measures, these ticks would become increasingly burdensome to their hosts and increasingly more likely to spread to hosts in adjacent areas. The increased risks of paralysis, toxicosis, and disease from exotic ticks are not as great as under the no action alternative, but the risks are greater than those from a cooperative quarantine and control alternative.

C. Quarantine and Control (Preferred Alternative)

The quarantine and control alternative allows APHIS to cooperate with the State and local governments in a comprehensive program to exclude, detect, delimit, prevent the spread of, and eradicate tick vectors of disease. The imposition of exterior and interstate quarantines could be applied to importation and movement of exotic ticks and host animal species. Importation of some host animals at high risk of carrying ticks or serious tick-borne disease could be prohibited entry. The surveillance for exotic ticks would include any premises that house imported animals, but would concentrate on those establishments in climates favorable to tick survival and introduction. In addition to actions under the other alternatives, any premises housing animals infested with exotic ticks and the infested animals would be treated to eliminate pest and disease risk. The inclusion of control and eradication treatments under this alternative allows for more timely elimination of pest and disease risks. Most of the discussion of environmental consequences of this alternative will relate to these pesticide treatments.

Animals may contract any of various diseases from exotic tick vectors, but with aggressive implementation of this alternative, the potential transfer of disease to animals is expected to be minimal. Should disease be diagnosed in any specific animals, the most likely program action would be to depopulate (cull and destroy) the animals, to prevent spread of the disease. Although some treatments are available for exotic tick-borne diseases, their effectiveness requires timely applications that would not be logistically possible for quarantine purposes. This lack of applicability for treatment of the host animals effectively limits the

options to depopulation or permanent quarantine of the infected animals at the regulated facility. Although permanent quarantine might be effective for small facilities, it would be difficult to enforce. It could be burdensome for facilities housing large populations of exotic animals. Depopulation would mandate the appropriate disposal of the carcasses of any euthanized animals. Alternative carcass disposal methods include burial, burning, composting, fermentation, and rendering. Each of these methods and its environmental impacts have been described in the draft Veterinary Services Environmental Impact Statement (USDA, APHIS, 1996). The findings related to carcass disposal in that document are incorporated by reference into this EA. Disposal is done in a manner that destroys the pathogen, eliminates potential spread of disease, and prevents further transmission to susceptible animals. Selection of a specific disposal method is selected based upon local geography, topography, type of animal and disease, number of carcasses, and available disposal options. Potential impacts related to carcass disposal include odor control, air emissions, and groundwater effects that must be addressed on a site-specific basis.

The control of exotic ticks on infested animals and premises requires application of specific pesticides that prevent tick survival, but do not have adverse effects on the host. This program alternative considers the use of two synthetic pyrethroids (cyfluthrin and permethrin) to treat hosts for tick infestation. These applications are effective against the exotic ticks known to vector the African heartwater disease organism. These synthetic pyrethroid pesticides were selected based upon confirmed good control of exotic ticks at application rates that are not toxic to the host animals being treated. Applications have been submitted to the U.S. Environmental Protection Agency for usage as a Quarantine Exemption (Section 18) for tick control.

The application method for each pesticide to infested animals depends upon the chemical and the animal being treated. Cyfluthrin may be applied by applicator swabs or low pressure hand sprayers to specific parts of the animals. Permethrin may be applied from a residual pressurized spray can in bursts to the anterior and posterior end of the body (tortoises and turtles) or by wiping the body of the infested animal with a clean cloth treated with a couple bursts of chemical. This method ensures control of the ticks without adversely affecting the host animal. The host animals are generally kept in enclosed areas where wildlife does not frequent. The toxicity of these compounds to species other than invertebrates is slight to moderate and exposure from treatment of infested hosts is expected to only affect target ticks and any other invertebrates that feed on the hosts.

1. Premises Treatment Risk Assessment

A chemical risk assessment (USDA, APHIS, 2000) was prepared to analyze the environmental impacts of premises treatment thoroughly. The results of that risk assessment are summarized briefly in this EA the findings of the assessment are incorporated by reference.

The environmental fate of treatment chemicals is an important consideration for premises treatments. Cyfluthrin and permethrin are synthetic pyrethroids that may volatilize to the air, but are more likely to adsorb to organic matter. Their half-life in organic soil ranges from 21 to 65 days (EPA, OPP, 1987; Kaufman et al., 1977). Neither compound is considered to be mobile in soil. Both compounds have been shown to accumulate in aquatic sediments and bioaccumulate in fish (Heimbach et al., 1992; EPA, OPP, 1987; Schimmel et al., 1983). The half-life of cyfluthrin in fish is about 9 days (EPA, 1991). Residues in fish decrease rapidly in untreated waters. Runoff and drift of cyfluthrin and permethrin into bodies of water should be avoided.

Cyfluthrin is of moderate acute oral toxicity to mammals and permethrin is of slight acute oral toxicity to mammals. The mode of toxic action of synthetic pyrethroids occurs through effects on the sodium channel to stimulate nerves to produce repetitive discharges. Muscle contractions are sustained until there is a block of the contraction. Nerve paralysis occurs at high levels of exposure (Walker and Keith, 1992). The symptoms of pyrethroid toxicity in mammals are diarrhea, deepened respiration, tremors, and convulsions. Both compounds can produce mild, localized skin irritation, but neither compound is a skin sensitizer. Chronic feeding and oncogenicity studies indicate that cyfluthrin is not an oncogen (EPA, OPP, 1987), but permethrin is suspected of having weak carcinogenic effects (Gosselin et al., 1984; Hallenbeck and Cunningham-Burns, 1985). No positive results were found in mutagenic tests conducted with cyfluthrin and permethrin (EPA, OPP, 1987; National Research Council of Canada, 1986). Reproductive and developmental effects from these compounds occur only at exposures much higher than would be anticipated in the tick programs. Cyfluthrin is practically nontoxic to birds and permethrin is very slightly toxic to birds. Both pesticides are moderately to severely toxic to terrestrial invertebrates, and very highly toxic to fish and aquatic invertebrates.

The human health risk characterization indicates that the highest potential exposures occur to program workers in accidents where a worker receives direct exposure from a spill or broken hose. Immediate cleansing of the exposed skin and other required safety procedures lower these risks to an acceptable level. All potential exposures of the public pose negligible risks. Ground applicator risks are slight for typical exposure scenarios and slight to moderate for extreme exposure scenarios. The analysis of these scenarios does not consider the effect of

required safety procedures and protective clothing on the overall exposure. Use of required protective gear and proper adherence to safety procedures ensures that risks to workers are within acceptable limits.

The nontarget wildlife risk characterization considers the potential exposure from direct application, off-site drift, and runoff. The risk to most terrestrial wildlife is low except insects which are more susceptible. Insects present on treated premises can be expected to have high mortality. The risk to aquatic species of fish, aquatic invertebrates, and aquatic amphibians is high in ponds with no buffer and moderate to high in streams (flowing water). Adherence to a 25 foot buffer around bodies of water places these species at low risk. This buffer should be considered for treatment of those few premises where standing water is an issue.

2. Environmental Justice

Consistent with Executive Order 12898, “Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations,” APHIS considered the potential for disproportionately high and adverse human health effects on any minority populations and low-income populations. Regulation of the import of animals potentially infested with exotic ticks is an activity most likely to affect zoos, pet suppliers, and facilities involved in rearing and maintaining live animals of foreign origin. These regulations do not specifically affect any subgroup of the population and the cost of these imported species is likely to exceed what low-income populations could afford. Placement of the facilities regulated under the quarantine and control procedures is not more likely in low-income or minority neighborhoods than other areas. The natures of all proposed program actions do not affect any specific subgroups of the population differently from others. Therefore, no disproportionate effects on minority or low-income populations are anticipated as a consequence of implementing the preferred action.

3. Endangered and Threatened Species

The Cooperative Exotic Tick Program may involve treatment of endangered, threatened, and proposed species that are infested with ticks. The Endangered Species Act of 1973 (ESA) as amended (16 U.S.C. 1531 *et seq.*) requires all Federal departments and agencies to consult with the U.S. Department of the Interior’s Fish and Wildlife Service (FWS) and/or the U.S. Department of Commerce’s National Marine Fisheries Service (NMFS) to ensure that any action that they authorize, fund, or carry out is not likely to jeopardize the continued existence of an endangered or threatened species or result in the destruction or adverse modification of its critical habitat (16 U.S.C. 1536(a)(2)). The animals are not adversely affected by the tick treatments and benefit from the elimination of the irritating and disease-carrying ticks. The premises treatments are applied to man-made habitats that are not the critical natural habitats of the animal species

being treated. Most of these facilities are in backyard-like settings and at locations that are not the original habitats for endangered and threatened species. APHIS will consult with FWS and/or NMFS, as appropriate, for facilities requiring treatment and handling of any diseased animals that are listed as endangered or threatened. APHIS will comply with all protection measures stipulated in that consultation and mutually agreed on with FWS and/or NMFS. Tortoise species of concern that have been implicated as hosts of African heartwater disease and for which regulatory restrictions are being proposed, are not federally listed as threatened or endangered.

4. Other Issues

Another issue relates to trade and compliance with the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) agreements. It is expected that prohibition of transport of some host species is likely to prevent risk of introduction of foreign animal diseases by the tick species that are known to infest those animals. APHIS will continue to abide by CITES rules for handling any listed species that has trade restrictions and is a host species regulated by APHIS for potential exotic tick infestation.

APHIS regulations for importation are also required to comply with the International Plant Protection Convention (IPPC). The IPPC requires that regulatory measures be transparent (clear), technically justified, and no more restrictive than measures imposed domestically. The technical justification is the pest and disease risk assessments prepared for these species by APHIS' Veterinary Services. Comparable regulation is anticipated for movement of these potentially infested host species within the United States as a result of these rules for tick regulatory programs.

Since many regulated premises are likely to occur in Florida or other States in the Gulf coast area, water quality issues must be considered. The Coastal Zone Management Act (CZMA) requires State plans to protect coastal areas. APHIS will adhere to any stipulations placed upon the protection of coastal waters by any State compliance plans under the CZMA.

Consideration was also given to compliance issues related to Executive Order 13045, "Protection of Children From Environmental Health Risks and Safety Risks." Based upon review of the sites of premises most likely to be treated and the results of the chemical risk assessment (USDA, APHIS, 2000), it was determined that this program does not pose any disproportionately high environmental health risks or safety risks to children because there are a limited number of premises and facilities where regulated host species occur, these sites are not frequented by children, and the risks of adverse effects to anyone visiting

such sites are negligible at times other than during treatments when access would be restricted to workers.

IV. Agencies, Organizations, and Individuals Consulted

U.S. Department of Agriculture
Animal and Plant Health Inspection Service
International Programs
4700 River Road, Unit 67
Riverdale, MD 20737-1233

U.S. Department of Agriculture
Animal and Plant Health Inspection Service
Policy and Program Development
Environmental Analysis and Documentation
4700 River Road, Unit 149
Riverdale, MD 20737-1238

U.S. Department of Agriculture
Animal and Plant Health Inspection Service
Veterinary Services
4700 River Road, Unit 41
Riverdale, MD 20737-1231

V. References

Boyd, E.J., 2000. The Winchester Quarantine. Texas Highways, January 2000: 41.

EPA - see U.S. Environmental Protection Agency.

EPA, OPP - see U.S. Environmental Protection Agency, Office of Pesticide Programs.

Gosselin, M.D., Smith, R.P., Hodge, H.C., and Braddock, J.E., 1984. Clinical toxicology of commercial products. Fifth ed. Williams and Wilkins, Baltimore, MD.

Hallenbeck, W.H., and Cunningham-Burns, K.M., 1985. Pesticides and human health. Springer-Verlag, New York.

Heimbach, F., Pflueger, W., and Ratte, H.T., 1992. Use of small artificial ponds for assessment of hazards to aquatic ecosystems. Environ.Toxicol.Chem. 11(1):27-34.

Kaufman, D.D., Jordan, E.G., Haynes, S.C., and Kayser, A.J., 1977. Permethrin degradation in soil and microbial cultures. Amer.Chem.Soc.Symp.Ser. 42:142-161.

National Research Council of Canada, 1986. Pyrethroids: their effects on aquatic and terrestrial ecosystems. Subcommittee on Pesticides and Industrial Organic Chemicals, National Research Council of Canada, Ottawa, Ontario, Canada.

Schimmel, S.C., Garnas, R.L., Patrick, J.M., Jr., and Moore, J.C., 1983. Acute toxicity, bioconcentration, and persistence of AC 222,705, benthioncarb, chlorpyrifos, fenvalerate, methyl parathion, and permethrin in the estuarine environment. J.Agric.Fd.Chem. 31:104-113.

USDA, APHIS - see U.S. Department of Agriculture, Animal and Plant Health Inspection Service.

U.S. Department of Agriculture, Animal and Plant Health Inspection Service, 2000. Chemicals risk assessment: Cooperative exotic tick program. USDA, APHIS, Riverdale, MD.

U.S. Department of Agriculture, Animal and Plant Health Inspection Service, 1996. Draft programmatic environmental impact statement: veterinary services. USDA, APHIS, Riverdale, MD.

U.S. Environmental Protection Agency, 1991. Environmental fate one line summary: cyfluthrin. Washington, DC.

U.S. Environmental Protection Agency, Office of Pesticide Programs, 1987. Pesticide fact sheet #164: cyfluthrin. Washington, DC.

Walker, M.M., and Keith, L.H., 1992. EPA's pesticide fact sheet database. Lewis Publishers, Boca Raton, FL.

**Finding of No Significant Impact
for
Cooperative Exotic Tick Program
Environmental Assessment, February 2000**

The U.S. Department of Agriculture (USDA), Animal and Plant Health Inspection Service (APHIS), has prepared an environmental assessment (EA) that analyzes alternatives for a proposed cooperative exotic tick program. Exotic ticks are vectors of diseases (viral and bacterial) that may result in injuries and death to domestic and wild animals, and humans. The EA, incorporated by reference in this document, is available from:

U.S. Department of Agriculture
Animal and Plant Health Inspection Service
Veterinary Services
4700 River Road, Unit 41
Riverdale, MD 20737-1231

The EA is available for public inspection at USDA, Room 1141, South Building, 14th Street and Independence Avenue, SW, Washington, DC, between 8:00 a.m. and 4:30 p.m., Monday through Friday, except holidays. Persons wishing to inspect the EA are requested to call ahead on 202-690-2817 to facilitate entry into the reading room.

The EA for this program analyzed alternatives of (1) quarantine and control (the preferred alternative), (2) quarantine only, and (3) no action. All of the alternatives were determined to have potential environmental consequences. APHIS selected the quarantine and control alternative because of its greater effectiveness in reducing the potential for tick-borne disease of animals and humans. Only minimal and manageable adverse impacts are anticipated to human health, nontarget species, and the physical environment from the proposed control methods. Protection measures will be applied as required for the protection of endangered and threatened species.

I find that implementation of the proposed program will not significantly impact the quality of the human environment. I have considered and based my finding of no significant impact on the risk assessment prepared for the EA and on my review of the program's operational characteristics. In addition, I find that the environmental process undertaken for this program is entirely consistent with the principles of "environmental justice," as expressed in Executive Order 12898. Lastly, because I have not found evidence of significant environmental impact associated with this proposed program, I further find that no additional environmental documentation need be prepared and that the program may proceed.

Tom Walton for
Dr. Alfonso Torres
Deputy Administrator
Veterinary Services

2/28/00
Date